

EdCW 2020**International Scientific and Practical Conference Education in a Changing World: Global Challenges and National Priorities****DIGITAL ENVIRONMENT –SPACE FOR PRESCHOOL TEACHER DEVELOPMENT**

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Abstract

In the 21st century, the successful professional activity of a preschool teacher is impossible without the productive and innovative use of information technologies. The traditional system of preschool education is experiencing a transitional moment, since the modern world is built on the basis of computer technologies, which constitute the foundation for the development of education, including preschool. The priority project in the field of education “Modern digital educational environment in the Russian Federation” is designed to ensure the wide dissemination of knowledge and information by transforming them into digital educational products, using online learning, creating comfortable conditions for learning and creativity. Currently, there is a problem of the correct approach to creating a digital learning environment (hereinafter referred to as DLE), contributing to the development of a preschool education teacher who must constantly acquire new knowledge and be well versed in the field of information technologies and systems. In the context of DLE, preschool educators should have the competencies that are in demand by society in the 21st century. In the course of the study, the authors of the article reviewed Russian and foreign experience in creating DLE, analyzed DLE in a preschool educational organization (hereinafter referred to as PEO), identified the leading approaches in the personal and professional development of preschool teachers in an information society.

2357-1330 © 2021 Published by European Publisher.

Keywords: Digital learning environment, transformation of the educational process, electronic educational resources



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1. Introduction

A modern person is a subject of a modern digital learning environment (DLE), which is an element of all developed world education systems, including high-speed Internet, providing educational institutions with appropriate technology, as well as a wide range of services that expand the interactivity of the learning process (Baran, 2014). The “digital educational environment” within the framework of the national project “Education” by 2024 will allow the use of modern digital educational technologies in addition to traditional ones throughout the country. When achieving the goals of the project, it is necessary to take into account the process of digitalization of education. It includes, firstly, the formation of DLE as a set of digital teaching aids; secondly, the modernization of the educational process, designed to guarantee the preparation of a person of any age for life in a digital society and professional activity in a digital economy (Donina & Vezetiu, 2019). According to the definitions of many authors, the digitalization of the educational process (hereinafter referred to as DEP), on the one hand, presupposes a counter transformation of the educational process and its elements, and on the other hand, these are digital technologies and means used in the educational process (Bulaeva et al., 2018). The maximum use of the capabilities of digital technologies and their adaptation to the effective solution of the assigned pedagogical tasks is the main goal of transforming the educational process. Thus, we consider DSP as a system of conditions and prospects, implying the presence of an information and communication infrastructure and providing a person with a set of digital technologies and resources for personal and professional development, self-realization, and solving professional problems (Villar & Celdrán, 2013).

2. Problem Statement

Our analysis of dissertation research indicates the presence of scientific works of domestic and foreign scientists devoted to the scientific and pedagogical problem of organizing DLE in universities and schools, contributing to the formation of information and communication (hereinafter ICT) competencies of teachers and indicates the lack of consideration of this problem in relation to teachers preschool education. The scientific and practical relevance of the indicated problem is confirmed with:

- the growing influence of DLE on the modernization of the educational process in the preschool education system, the need to improve the quality of information and pedagogical interaction and the insufficient formation of ICT competencies of preschool teachers in the constantly updated DLE;
- insufficient technological base of preschool educational organizations in conditions of DLE.

The main problem of the study is to identify and substantiate the influence of DLE on the effective personal and professional development of preschool teachers.

3. Research Questions

DLE is an important aspect in the organization of the educational process, since it performs significant functions related to the personal and professional development of preschool teachers, advanced education in connection with the continuously accelerating pace of obtaining the latest professional knowledge. At the same time, a number of questions arise during the study:

- How does DLE contribute to the personal and professional development of preschool teachers?
- How does ICT proficiency by preschool teachers affect the quality of preschool education?

4. Purpose of the Study

The main goal of the study is to identify and theoretically substantiate the influence of DLE on the personal and professional development of preschool teachers.

5. Research Methods

The methodological basis of the research is a general scientific systemic approach, involving the analysis of DLE in conjunction with the trends in the development of education as an integral system: a competence-based approach that allows considering the DLE through the target orientation of the educational process towards the formation of students' competencies. It also consists of an activity approach, thanks to which in the process of activity self-development and self-actualization of the individual takes place. The study used theoretical methods: synthesis and interpretation of the data obtained, isolation and systematization of essential information, comparison and generalization of information, theoretical analysis. The empirical methods are questioning, conversation, correspondence method, which made it possible to reveal the attitude of the administrative and managerial staff, teachers and parents to the creation of a DLE for the personal and professional development of teachers, as well as statistical methods for processing the data obtained.

6. Findings

As a result of the analysis of foreign studies, we have identified problem areas in the use of ICT and DLE by subjects of the educational process. They are complex in nature and are classified according to the level of deficiencies: technical (outdated equipment; difficulties in connecting to the Internet; lack of technical support); operational and technological (lack of ICT competence - skills in using ICT by both teachers and parents (Kumar & Sharma, 2016). It is also mentioned time for preparing and planning lessons with students using ICT (Gareev et al., 1987) and socially developing character (problems of professional development of teachers and a lack of knowledge about the positive socializing possibilities of DLE (Kirkwood & Price, 2014); insufficient development of critical thinking, elaboration of the student's advancement in his own rhythm.) Turning to the analysis of the experience of using DLE in

foreign pedagogy can fill the gap in the development of scientific the foundations of effective personal and professional development of a preschool teacher. The processes of reforming the educational system in countries such as France and Canada are associated with modern trends in the development of society, the rapid improvement of ICT and their influence on the formation of personality in today's information in a given society, where education is considered the most important resource. ICT and DLE in these countries are considered as an integral part of the human educational sphere (Kashtanova et al., 2017). In Russia, the preschool education system is also going through the next stage of modernization, so the strategy for the training of pedagogical personnel in preschool education is highlighted (Zadvornaya, 2019).

The educational process both in France and Canada and in Russia is based on the subject-subject approach. At the same time, the individual needs of teachers, both in professional activity and in personal terms, are necessarily taken into account (Litvinova & Milonova, 2020).

In Russia, in accordance with the concept of digitalization of education, the following areas are developing the use of universal ICT in the educational process; the use of computer telecommunications. In addition there is a development and use in the educational process of computer training and monitoring programs and multimedia software products (interactive games, encyclopaedias, presentations, catalogues), accompanied by methodological material for their use for teaching purposes; new competencies of teachers in the context of informatization of preschool education (Maltseva et al., 2015).

The fundamental mechanism for updating the professional qualities of preschool teachers is to improve their qualifications.

The authors of the article, in accordance with the problem posed, conducted a study in which teachers, administrative staff and parents of children from 18 preschool educational organizations in 18 districts of St. Petersburg took part through questionnaires, SWOT-analysis and expert assessment of the effectiveness of DLE in personal and professional development of preschool teachers. DLE in preschool education organizations, as well as the effectiveness of its use in the personal and professional development of teachers were studied.

To determine the level of personnel, material, technical, informational conditions conducive to the development of DLE in preschool educational organizations, the leaders of educational organizations were asked to conduct a SWOT analysis, which made it possible to conclude that there are favourable conditions for the development of DLE in preschool educational organizations:

- 90% of PEO employees and administration use a computer to prepare documents and collect information about the educational process, on which licensed software is installed;
- 90% of preschool educational organizations are staffed (with the highest qualification category – 75% of teachers, with the first – 21%, 4% of teachers without a category);
- 100% of the official websites of all preschool educational institutions meet the requirements of the legislation of the Russian Federation;
- 79% of respondents have a personal page on the PEO website, and 15% of PEO teachers have a personal website;
- 90% of the respondents were trained according to advanced training programs “Information Technologies”, etc.;

- 19% of teachers took part in competitions for personal websites, electronic educational resources, dissemination of experience in the field of ICT; 35% of teachers participate in networked educational projects.

However, there are also unfavorable conditions for the development of DLE:

- an insufficient number of automated workplaces for teachers have been created in preschool educational organizations (30%); computers of specialists and administration are connected to the Internet;
- 30% of teachers are motivated to master and use new ICT technologies (participation in competitions of different levels, certification for the highest qualification category), which has been proven by foreign scientists, who confirm that the younger the respondents, the less often they call ICT ownership a problem for themselves (Jordan, 2014);
- 30% of teachers are active in using digital tools in class with children and in interaction with parents.

The analysis of the results of the questionnaire survey of the administrative and management level and teachers made it possible to state the following:

- 90% of respondents from among the administration and 30% of teachers take part in the mastery and implementation of ICT technologies in the educational process, which is also confirmed by a number of studies (Levchenko, 2019);
- 90% of representatives of the administration, 83% of teachers and 87% of parents believe that ICT tools are not used actively enough in classes with children and in joint activities;
- 75% of respondents from among the administration and 13% of teachers accept the ideology of using ICT in the educational process and creating of DLE;
- 21% of teachers held open events in the district and city using ICT, 28% of teachers have publications about the experience of using ICT, however, PEO did not represent the experience of organizing DLE in professional communities, despite the fact that it is possible to optimize the educational process (Sergeeva et al., 2019).

Thus, the study conducted revealed an ambiguous picture –on the one hand, there is a tendency to increase the use of digital resources, on the other hand, there are teachers who ignore the achievements of the digital world and continue to work according to an outdated scheme. In addition, the analysis of DLE in PEO showed that the development of DLE in PEO is chaotic, there is no general strategy for the development of DLE, priority is mainly given to quantitative characteristics, and there is no understanding of the effectiveness of the use of DLE in terms of the pedagogical component. However, the transformation of preschool education based on ICTs is understood by teachers and the administrative and managerial staff of preschool educational organizations as a qualitative change in DLE. This change should be focused on achieving a new quality of education through the use of new pedagogical technologies based on ICT, as well as on the personal and professional development of teachers. Kastel's

(2000) in his works noted that in modern conditions to have knowledge means to be able to quickly navigate in the flow of the latest information, freely looking for the necessary information in the knowledge store. Therefore, the PEO has developed a general principle for the selection of pedagogical technologies, select technological solutions that include conditions and algorithms for the formation of universal and professional competencies of teachers.

The results of the study allowed us to highlight a number of advantages of PEO, where DLE was created for the personal and professional development of teachers (Figure 01).

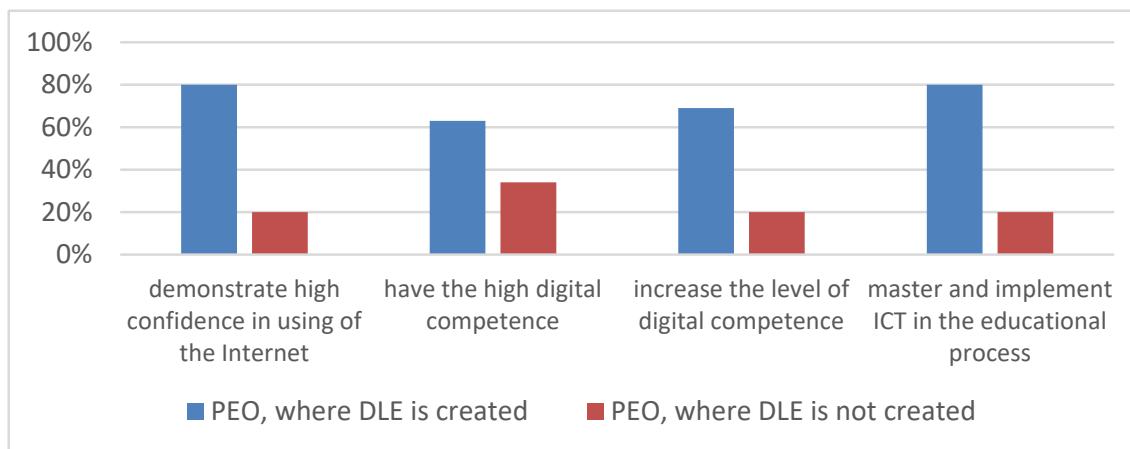


Figure 1. Diagram of differences in the staffing of teachers from preschool educational organizations with the created DLE and personnel from preschool educational organizations, where DLE is not created

The data obtained allowed us to assume that teachers where DLE was created have higher digital competence due to the more active use of DLE in the educational process. Table 01 formulates the expected and actual competencies of preschool teachers.

Table 1. Estimated and actual competencies of preschool teachers identified during the study

Estimated Competencies of Preschool Teachers	Actual competencies of preschool teachers
the ability to maintain pedagogical documentation on electronic media	maintaining pedagogical documentation on electronic media
knowledge about the upbringing potential of the PEO information environment	using the upbringing potential of the PEO information environment
the ability to form and use the information environment in a group in order to develop the foundations of information culture in children	the formation and use of the information environment in the group with the aim of developing the foundations of information culture in children
communicative competence	development of communication skills
the ability to develop and apply electronic didactic and pedagogical software	develop and apply electronic didactic and pedagogical software
information activity and media literacy	information activity and media literacy

7. Conclusion

The results of the study led to the following conclusions:

- digital technologies in the educational process of preschool educational organizations are used in combination with traditional forms of education, the latest ICT have a positive effect on all indicators of the quality of preschool education;
- the emergence and spread of new pedagogical practices using DLE, contribute to the personal and professional development of preschool teachers;
- the creation of a DLE involves the active involvement of teachers in the information educational space of preschool educational organizations on a regular basis and contributes to the personal and professional development of teachers.

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